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VOCATIONAL AND TECHNICAL EDUCATION IN AGRICULTURE FOR OFF-FARM OCCUPATIONS.

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THE MAJOR OBJECTIVE OF THIS PUBLICATION IS TO ORIENT BOARD MEMBERS, ADMINISTRATORS, TEACHERS, COUNSELORS, AND LAYMEN TO THE EMERGING CONCEPT OF PROGRAMS FOR OFF-FARM AGRICULTURAL OCCUPATIONS AS PART OF A COMPREHENSIVE PROGRAM OF VOCATIONAL EDUCATION IN AGRICULTURE, IT EXPLAINS THAT A PROGRAM IS DEVELOPING, THE NEED IS ESTABLISHED, CLUSTERING OF OCCUPATIONS MAKES TRAINING FEASIBLE, STATE PLANNING AND OPERATION OF PILOT PROGRAMS ARE IMPERATIVE, THE PRINCIPAL BURDEN WILL FALL UPON AREA SCHOOLS, AND EFFORTS MUST BE COORDINATED. TOPICS COVERED ARE THE NEED FOR A PROGRAM OF EDUCATION IN OFF-FARM OCCUPATIONS, ANTICIPATED BENEFITS, DISTRIBUTION OF RESPONSIBILITY, THE SIGNIFICANCE OF AREA SCHOOLS, COOPERATION WITH EMPLOYERS AND ORGANIZED LABOR, INVOLVEMENT OF OTHER EDUCATORS, STAFFING, FUNDING, FACILITIES, STUDENT SELECTION AND PLACEMENT, PART-TIME STUDENTS, BASIC EDUCATIONAL DEFICIENCIES, PROGRAM PLANNING, RELATED WORK EXPERIENCE, EVALUATION, ADVISORY COMMITTEES, AND POLICY DEVELOPMENT. FIVE EXAMPLES OF DEVELOPING PROGRAMS ARE CITED. THIS DOCUMENT IS ALSO AVAILABLE FROM THE CENTER FOR RESEARCH AND LEADERSHIP DEVELOPMENT IN VOCATIONAL AND TECHNICAL EDUCATION, THE OHIO STATE UNIVERSITY, 980 KINNEAR ROAD, COLUMBUS, OHIO 43212. (JM)

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VOCATIONAL AND TECHNICAL EDUCATION IN AGRICULTURE FOR OFF-FARM OCCUPATIONS

The Center for Research and Leadership Development

In Vocational and Technical Education

The Ohio State University
980 Kinnear Road
Columbus, Ohio 43212

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Vocational and Technical Education in Agriculture for Off-Farm Occupations

For counselors, teachers, board members, and administrators at all levels

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Publications on Off-Farm Agricultural Occupations
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This publication is one of a series relating to Off-Farm Agricultural Occupations developed at the Center for Vocational and Technical Education under a grant from the Division of Adult and Vocational Research, U. S. Office of Education. Each of these publications was designed for a specific purpose. However, they are designed to complement and reinforce each other. It is suggested that persons using any of these materials will want to familiarize themselves with the other publications in this series. Following is a complete listing of this series.

1. Policy and Administrative Decisions in Introducing Vocational and Technical Education in Agriculture for Off-Farm Occupations

2. Vocational and Technical Education in Agriculture for Off-Farm Occupations

3. Summary of Research Findings in Off-Farm Agricultural Occupations

4. Planning and Conducting Cooperative Occupational Experience for Off-Farm Agriculture

5. Occupational Guidance for Off-Farm Agriculture

6. Horticulture - Service Occupations
(Course outline and twelve modules)

7. Agricultural Supply - Sales and Service Occupations
(Course outline and twelve modules)

8. Agricultural Machinery - Service Occupations
(Course outline and sixteen modules)

9. Agricultural Chemical Technology
(Course outline and nine modules)

PREFACE

The implementation of the provisions of the Vocational Education Act of 1963 has rapidly increased the number of schools providing training for off-farm agricultural occupations. Programs are being developed for several levels of preparation by local schools, area schools, and community colleges. Personnel, both in and outside of the profession, are seeking information about the objectives, costs, benefits, needs, procedures for initiating, and the relationship of these programs to existing educational programs.

This publication has as its major objective the orientation of board members, administrators, teachers, counselors, and laymen to the emerging concept of programs for off-farm agricultural occupations as part of a comprehensive program of agricultural education and vocational education. The publication provides assistance in planning such programs and includes short descriptions of some successful programs in operation.

Critical areas and prime considerations where basic policy and administrative decisions pertaining to a school's program in off-farm agriculture appear in a companion publication of The Center entitled, Policy and Administrative Decisions in Introducing Vocational and Technical Education in Agriculture for Off-Farm Occupations. These two publications are designed to aid governing boards and administrators in "thinking through" the essential elements of designing and establishing administratively sound programs of education for occupational entry into off-farm agricultural positions.

This publication was prepared by Dr. Herbert M. Hamlin, former Chairman and Professor Emeritus, Division of Vocational and Technical Education, College of Education, University of Illinois. Dr. Hamlin's writing, leadership in program development, and interest in total community programs of vocational education eminently qualify him to prepare this publication.

Although the final responsibility for the content rests with Dr. Hamlin and members of the Project Task Force, grateful acknowledgement is made of the assistance of the following persons who reviewed drafts of this publication and made many valuable comments: Mr. Harry G. Beard, Associate Professor of Education, School of Education, North Carolina State University, Raleigh; Dr. James Hensel, Specialist in Agricultural Education, The Center for Research and Leadership Development in Vocational and Technical Education, The Ohio State University, Columbus; Mr. Robert Kozelka, Chief of Business and Distributive Education, State Department of Education, Springfield, Illinois; Dr. William B. Logan, Professor and Director, Distributive Education Institutes, College of Education, The Ohio State University, Columbus; Mr. Sidney S. Sutherland, former Chariman and Professor Emeritus, Department of Agricultural Education, University of California at Davis; and Dr. Ralph Wenrich, Head, Department of Vocational and Practical Arts Education, College of Education, University of Michigan, Ann Arbor.

The reader's attention is directed to the other publications developed by the project and designed to supplement this title.

We hope this material will be of assistance to teachers and administrators in developing needed programs in this area. We solicit your reactions and suggestions for its improvement.

Robert E. Taylor
Director
The Center for Research
and Leadership Development
Vocational and Technical Education

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Summary

Vocational and technical education in agriculture for off-farm occupations is developing in the local schools, area schools, and colleges.

The need for this type of education has been well established.

Progress has been made in clustering the hundreds of individual occupations of this type so that training programs are feasible.

State participation in the planning and operation of pilot programs is imperative. An unusually high percentage of the costs of these initial programs will have to come from state and federal funds.

Education that leads to gainful employment in these occupations can be provided at some levels in some of these occupations in some high schools. The four-year colleges and universities can provide some education for the technical occupations in agriculture and can aid in many ways in developing vocational and technical programs in local and area schools. It is to be expected, however, that the principal burden will fall upon area schools supported by public funds.

If local schools, area schools, and universities combine their efforts, they are likely, together, to be able to provide in the forseeable future only a part of the education for these occupations that is needed. If their efforts are not coordinated, there will be waste and frustration.

No other part of a comprehensive program of agricultural education should be slighted in developing these programs.

Basic education, vocational counseling, and grounding in science, mathematics, and communication are as essential to the success of the new program as are sound organization and effective teaching.

The entire eduational establishment from the nursery school through the university will share responsiblity for its success or failure.

Terminology

Since there is not an accepted terminology for some of the concepts included in this publication, working definitions had to be provided.

Occupational education: All education designed to contribute to occupational choice, competence, and advancement.

Vocational education: Specialized education for work in a particular non-professional occupation or a cluster of non-professional occupations.

Technical education: Education at the semi-professional level provided ordinarily in one- or two-year programs beyond the high school which emphasizes science and mathematics in addition to laboratory procedures and technical information related to the occupations for which students are preparing.

Area schools: Junior and community colleges, vocational schools, technical institutes, and branches of universities serving areas usually larger than local school districts.

Education in Agriculture for Off-Farm Occupations - A Broad Field Within a Comprehensive Program of Agricultural Education

This publication deals with vocational and technical education for off-farm occupations using agricultural science and technology. There are no suggestions in it that other forms of agricultural education should be abandoned or slighted in order to provide this new form. All other types of agricultural education are also important and underdeveloped.

A modern, broadened concept of agricultural education is emerging. It includes:

Appropriate education in agriculture as a part of the education of all;

Counseling about occupations in or related to agriculture;

Education in production agriculture for those who are engaged in or who expect to be engaged in farming; and

Vocational, technical, and professional education in agriculture for those who are engaged in or who expect to be engaged in off-farm occupations using agricultural science and technology.

The task of providing agricultural education is shared by local schools, area schools, and colleges and universities in our system of public education plus a host of private agencies.

The Need for the New Program

The number of workers in off-farm occupations requiring some knowledge of agriculture has increased rapidly in recent years while the number engaged in farming has been decreasing. Depending upon the definition used, there are almost twice as many persons employed in off-farm occupations as there are farmers today. This number is continuing to increase.

Specialized education in agriculture for farmers has been developing throughout the current century. Education in agriculture for off-farm occupations has usually been improvised under private auspices during the relatively short period in which these occupations have been important. There has been no public effort to provide appropriate education in these occupations comparable to that provided for farmers.

Shortages of trained and competent workers exist in almost all of these off-farm occupations at a time when there is concern about employment for young people. These young people include recent high school graduates and youth unneeded in production agriculture.

The occupations which serve farmers have become critical factors in the successful operation of farms. Programs which improve the competency of workers in off-farm occupations serving agriculture benefit not only farmers, but also businesses and industries in which these workers are employed, and the public.

Anticipated Benefits from the New Programs

Some benefits, not all of them obvious, which might accrue from providing education in agriculture for off-farm occupations where needed are the following:

Many, who have special aptitudes useful in these occupations, but are not now receiving specialized vocational-technical education would become trained and employable.

Employers, now searching almost frantically for competent workers, would have a supply of them available.

The entire agricultural industry would be served by attracting competent young people into these occupations who might otherwise be lost to it.

Training costs to business and industry would be reduced as public institutions make their contributions.

High school programs in agriculture could be reorganized to provide programs which appeal to students interested especially in agriculture but who are not adapted to or interested in production farming.

The cooperation of the different vocational education services which is necessary for providing training for these workers might lead to other desirable forms of cooperation among these services.

If the proposed plan is followed, a whole school system becomes involved in preparing people for these occupations. Elementary schools as well as high schools, area schools, and colleges would make conscious contributions, establishing a precedent desirable in all forms of vocational-technical education.

Distribution of Responsibilities for the New Type of Education

Federal funds for vocational and technical education in agriculture for off-farm occupations and related vocational counseling may be used by public high schools, area schools, and colleges, and by private, non-profit agencies under contracts with public schools or colleges. Federal funds must be supplemented by state and local funds. State and local funds are the primary sources which will provide the basic and supporting education required for successful vocational-technical education.

Local schools could perform the following indispensable functions:

1. Provide the education and counsel required if students are to specialize successfully.
2. Offer courses for high school students in two or more areas of agriculture which may lead to employment or to further specialization in area schools or colleges.
3. Prepare for employment in low-level occupations many who will leave schools at or before graduation.
4. Offer the agricultural courses needed by adults in off-farm occupations with the help of the area schools and colleges.

Colleges and universities could serve in a variety of ways:

1. Conduct pilot programs.
2. Supplement the offerings of local and area schools.
3. Conduct research related to these programs.
4. Aid in preparing course and teaching suggestions.
5. Prepare the specialized personnel needed for the new programs, providing both preservice and in-service education.

State departments of education could exert leadership in the following ways:

1. Take the initiative in developing a state-wide master plan with attendant state policies for vocational-technical education including programs for off-farm agriculture.
2. Promote the development of policy by institutions initiating programs in off-farm agriculture.
3. Develop in-service workshops for teachers involved in these programs.
4. Provide active support, including funds, for pilot programs.
5. Coordinate the efforts of personnel engaged in the different programs within the state to avoid duplication of effort.
6. Serve as a medium of communication by which persons in different institutions may learn of results of methods and techniques used by other institutions.
7. Develop procedures for and assist in the evaluation of these programs.

Although local schools and colleges are performing their functions fully, it is to be expected that the brunt of specialized vocational-technical education in agriculture for off-farm occupations will be borne by the area schools. Many employers demand that new employees be 18 to 20 years of age or older and expect their training to be recent. Also, there are many more adults in need of retraining and being brought up to date than there are youth needing pre-employment training.

The Growing Significance of Area Schools

Over a long period we relied upon local schools and colleges to provide education in agriculture. Now we have large numbers of area schools. Many of them are providing, and more will provide, programs of vocational and technical education related to agriculture. A few states are almost completely blanketed with area schools; most of the other states are developing state-wide systems.

Area schools with programs in agriculture are concentrated largely in six states: California, Connecticut, Minnesota, Mississippi, New York, and North Carolina. At least nine states are developing state systems of area schools in which provisions will be made for teaching agriculture: Delaware, Florida, Kansas, Kentucky, Oklahoma, Oregon, Tennessee, Texas and Washington. Individual area schools offering courses in agriculture are to be found in several other states.

Area schools are a necessity if the full possibilities of vocational and technical education in agriculture for off-farm occupations are to be developed. The number of persons in a single school district needing any particular kind of education is likely to be small and the costs of providing it adequately would be high. In some of these occupations, there is little demand for new high school graduates; more maturity is required. A comprehensive area school with 10 to 20 or more occupational curricula provides other advantages not to be found in most high schools. Students better adapted to a particular program are likely to be selected since there are alternatives available to them. Much of the vocational training required in some occupations may have to be provided by teachers of

business, distributive, or industrial education. Specially tailored supporting courses in communication, mathematics, science, and other fields which few high schools can provide are needed. A course in agriculture mechanics taught in a small, rural high school is likely to be far different from one taught in an area school with a well-planned, comprehensive program.

Studies Confirm the Need for Agricultural Education for Off-Farm Occupations

A summarization has been made of the findings of predominantly interview-type surveys, nearly all conducted in 1964, in twenty-six states in relation to employment needs in off-farm agricultural businesses.[1] There was considerable variation in the way the states conducted their studies and reported the findings. Much of the research is still in progress and additional state publications of findings will be issued.

The report is divided into four sections. The first deals with numbers of people employed, numbers needing agricultural competencies, and expected number of new workers to be hired in the next five years. The second section analyzes the competencies needed by persons in the different occupational classifications. The third section takes a look at worker characteristics such as age, education, background, and salary. The fourth section is a brief summary of the results of each state survey.

Generalizations that may be drawn from the findings are:

1. Almost half the people employed in off-farm agricultural businesses need education or training in agriculture.

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[1] Summary of Research Findings in Off-Farm Agricultural Occupations

2. Employers expect about a twenty per cent increase in the next five years in the number of employees needing agricultural competencies.
3. The greatest need in numbers for agriculturally-trained employees will be in agricultural supplies sales and services, agricultural machinery sales and services, ornamental horticulture services, and marketing and distribution of livestock and crop food products.
4. Agricultural competencies needed are determined mainly by the products handled by a business.
5. The need for industrial competencies is low in most agricultural businesses.
6. Many of the agricultural subjects taught to students preparing for production farming will be needed also by students who enter off-farm agricultural occupations.
7. There are many instances in which vocational agriculture may support, or in turn be supported by, other vocational subjects.
8. Salesmanship, human relations, and business management are competencies needed by all employees, but in varying degrees.
9. Beginning salaries and wages for service workers are relatively low. Effective training programs should make it possible for new employees to earn higher incomes.
10. Continuing in a vocational-technical education program beyond the twelfth grade is appropriate for many persons since most employers consider twenty years of age to be a minimum entry level.
11. Trainees with farm background or farm experience have a definite advantage when seeking employment in off-farm agricultural businesses.

12. Occupational titles needing the greatest number of new employees, not including professional workers, in the next five years are:

Agricultural Machinery Mechanics	Greenhouse Grower
Agricultural Machinery Mechanic's Helper	Greenhouse Worker
Agricultural Machinery Set-up Man	Nursery Worker
Agricultural Machinery Salesman	Greenskeeper
Agricultural Machinery Partsman	Groundskeeper
Agricultural Supplies Salesman	Food Products Processman
Agricultural Supplies Serviceman	Food Products Salesman
Agricultural Supplies Deliveryman	Food Products Dept. Manager

Research in this area is just beginning to provide direction to curriculum planning. Much more is necessary if needs of students and industry are to be met.

Programs are Under Way

Programs to prepare certain kinds of workers for off-farm occupations involving agriculture have developed in every region of the country and in almost every state. Five of these programs are described in the appendix. One of them has been in operation for 38 years, another for 21 years. Many other programs could have been cited. Those reported here have been visited by members of the staff of the Center.[2]

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[2]The schools included are the Modesto Junior College at Modesto, California; Forsyth Technical Institute at Winston-Salem, N. C.; Reidland High School, Paducah, Kentucky; Alexandria Area Technical School at Alexandria, Minnesota; and Rockland County Center of Technology and Education at West Nyack, New York.

Proceed with Caution - But Proceed

Although we have delayed too long in providing vocational and technical education in agriculture for off-farm occupations, we must not rush carelessly into this field.[3] Many problems arise in providing it which have not been encountered in providing education for farming. Few teachers of vocational agriculture are prepared to undertake it without special training. Unplanned and careless efforts at this stage could result in more failures than successes or even the abandonment of efforts to provide this needed type of education. This is an area in which an unusual amount of state participation, state leadership, and even state control should be exerted. A state should determine the number and locations of pilot programs to be financed. It has an obligation to assist pilot schools in providing special financing, supervision, and curriculum development; assisting in recruiting and training teachers; and by cooperating in evaluation and replanning.

State-level functions may be shared in various ways by state departments of education and universities, but a clear understanding of the responsibilities of each participating state agency is required.

Developing Programs in Cooperation with Employers and Their Organizations

Experience, in providing education for off-farm agricultural occupations, indicates the necessity for working closely with both prospective individual employers of trainees and with organizations of employers. Many area, state,

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[3] See the publication in this series entitled Policy and Administrative Decisions in Introducing Vocational and Technical Education in Agriculture for Off-Farm Occupations, for more detailed suggestions of practices and precautions to be observed.

and national trade associations have indicated that they need trained workers. In many instances, they have helped both to initiate and guide programs and to recruit and finance students. Employer organizations have assisted in surveying community and area training needs, in providing locations for occupational experience, and in evaluating on-going programs.

The best possible approach to employers by the institution may be to provide short courses useful to the employees which will increase employers' confidence in the value of one- or two year programs for prospective employees. The cooperation of employers is required in providing work experience for students. This experience frequently leads to permanent employment with the same employers.

Working With Organized Labor and the Employment Security Agency

Many persons conducting responsible for conducting these programs will be having their first contacts with organized labor. Where organized labor is represented, cooperation with this group is imperative. It will be necessary to know the requirements for admission to applicable unions. Arrangements can sometimes be made whereby school training can be substituted in part for apprenticeship. There is only disappointment awaiting those persons who are trained for a unionized occupation but cannot gain admission into a union.

The employment service agency can be used in developing these new programs. Persons in agricultural education need to establish closer contacts with this agency in providing education for off-farm agricultural occupations. This agency will be found highly cooperative and able to aid programs in a variety of ways. It may be used to help in

recruiting, testing, and counseling prospective students; to aid in planning training programs; to secure part-time occupational experience for students in training; and to assist in placement when training is completed. The goodwill and support of this agency is invaluable. Cooperation with this agency is mandatory for states receiving federal funds for vocational education.

Working with Other Governmental Agencies

Employment in off-farm occupations is governed by complex legal requirements with which those conducting training programs must become familiar. Several of the occupations require licensing of practicioners by a state. Training must be conducted so that graduates can qualify for licensing. The employment of younger workers is regulated by law and these regulations must be observed. This is important when providing part-time occupational experience while students are in training.

Laws and rulings to be observed vary from state to state. They are so complex and varied that no attempt will be made to summarize them. Attention is called to the publication in this series entitled, Planning and Conducting Cooperative Occupational Experience in Off-Farm Agriculture, which deals in some detail with laws and rulings affecting this type of education.

Government (federal, state, and local) is one of the large employers of workers in off-farm agricultural occupations. Contacts with its many divisions will yield important information about jobs available and training needed and, in addition, may lead to the placement of many graduates. Some studies reported in the publication cited earlier have overlooked this outlet for graduates.

Involving the Various Vocational Education Services

The contribution made by agricultural educators in providing training for off-farm occupations requiring some knowledge of agriculture may vary from 1 to 100 percent of the total training program. Distributive, industrial, business, and technical educators are providing some training for some of these occupations. The emphasis in this publication is upon sharing the training for these occupations with each service contributing as it is able. Agricultural educators will be seriously handicapped if they undertake to provide programs without engaging the assistance of their colleagues in other vocational education services.

Involving "General Educators"

Essential contributions to these programs are made by persons not considered to be vocational educators. Employers in most off-farm agricultural occupations included in the studies reported have often ranked personality, ability to work with people, and communication skills among the chief requirements of the jobs they have to offer. Those who teach English, speech, mathematics, science and other related subjects are an integral part of the comprehensive staff required for successful training programs.

Providing Adequate Funds and Facilities

Education for off-farm agricultural occupations is not cheap education. The costs per student in typical programs in one state range from $600 to $1,200 per year, although most of these programs have operated with inadequate funds.

The costs are high because classes are typically small; equipment is expensive; teachers must be well paid since they must be competent to hold responsible positions in the industries or businesses for which they are training students; and other expenditures (for operating costs, library, and visual aids) are greater than those in many traditional programs of vocational education. If programs for full-time students are undertaken, the costs per year will approximate those in providing good collegiate education and will be higher than the costs in the first two years of a four-year college.

A larger portion of the funds used in the future will have to be state and national funds. Most local school districts, accustomed to the costs of the programs in vocational agriculture they now have, will be unable or unwilling to assume the substantially greater costs the new programs would involve.

The temptations to use substandard, cramped housing and discarded equipment, to reduce teaching time below that required to obtain competence, and to omit expenditures for adequate teaching aids will be strong in launching these programs. Some programs may succeed although facilities are limited, but the risks involved are great. A small investment may result in waste of the funds expended. It is possible to influence public perception of the importance of a program by the type and condition of the building and other facilities provided.

Student housing may be necessary since enough students to begin a program may come from a wide area. In some cases use is being made of dormitories and federal funds may be had to assist in building them.

Securing Program Directors and Teachers

It is to be expected that most of the people who will direct programs preparing for off-farm agricultural occupations will be recruited from agricultural business and industry or will have had experience in these fields. Most teachers of vocational agriculture undertaking to fill the role will need to possess experience supplementing the farming experience they have had and special training, preferably extensive. Some of the many agriculture teachers pursuing master's degrees might well major in fields which will provide this training. In multiple-teacher departments, it may be possible to release one teacher at a time for advanced training and/or business and industrial experience. Resource personnel from agricultural businesses may be used advantageously.

New types of training programs will have to be developed for these teachers and they will vary with the specialties to be taught. Extension classes pertaining to some of their common needs can be provided, but specialized programs for particular groups of teachers are needed. These can be offered during the summers. Often there will not be enough teachers of any one specialty to warrant a summer training program in each state; regional cooperation will be required. Some universities should develop extensive programs at the undergraduate or graduate level to prepare particular kinds of teachers. The nature of those programs will vary greatly; there should be no attempt to train all kinds of those teachers through one curriculum.

Since qualifications are high and those having them are few, the salaries paid must be high. If qualified teachers cannot be secured, a program should not be attempted.

Part-time teachers from business and industry may often be used to assist full-time teachers.

Recruiting, Screening, and Counseling Students

Securing enough students so that training costs per person will be reasonable and selecting students likely to succeed in a training program and on the job are problems seldom faced seriously in providing the older types of vocational education in agriculture.

However, recruitment in these newer programs may be difficult because a program is new. It becomes easier as individuals are trained and placed satisfactorily. Recruitment is aided if:

1. The program is supported by a related trade or business association.
2. There is adequate vocational counseling.
3. An area school has a representative who works with the local schools of the area.
4. Part-time employment in the industry is provided so that a student has "a foot in the door" and some earnings to assist in meeting his expenses.
5. The school has a program of financial aid for needy students. There are new opportunities to provide this aid with funds available under the 1963 Vocational Education Act or the National Economic Opportunity Act. Employers' associations frequently provide scholarships.

Many who show interest in training for off-farm agricultural occupations

will be considerably older than the high school students to whom agriculture teachers are accustomed. Some will have had considerable experience since leaving school, much of it unsuccessful. The average age of an entering group of full-time students in a post-high school program is likely to be 25 or 30 or more. Their school records shed light on their capabilities, but they may not be conclusive. Tests of various kinds, employment records, and intensive personal interviews are needed in choosing those who will be trained. High school students admitted to 11th and 12th grade programs in agricultural machinery, agricultural business, and other fields should be those who are seriously preparing for work in these fields on graduation or for further study in them in area schools or colleges of agriculture. Even though careful selection is practiced, some tryouts in two or three programs may be necessary before one is found in which a student can succeed. Those without aptitude in a specific program should be guided into other programs where they can succeed.

Developing Outlets for Graduates

One of the serious handicaps in providing education for some off-farm agricultural occupations is the low rate of entry pay in some of these occupations in some localities. Another is the limited opportunity in many situations to advance in earnings. However, it should be recognized that employers themselves say this will improve with the availability of trained personnel.

It should be understood at the outset that the first obligation of a school offering these programs is to the individual trained, who should be prepared for the best opportunity available to him. Some will prefer to

remain in the areas where they are trained in spite of financial inducements to move, but no one should be trained in ignorance of opportunities elsewhere. A training center should establish relationships with employers offering the best opportunities, wherever they are. The state employment service will be of assistance in locating employment opportunities.

It is likely that a high percentage of the costs of a training program will be paid by the nation and a state. A school is under no obligation to keep its graduates in its own area or to prepare students for local employers who pay less than a standard wage.

There are so few schools in the country preparing students well for these occupations that it can be expected that paths will be beaten to the doors of these schools that prepare them well. Extensive migration has become normal even in those occupations for which relatively uniform provisions for education and training are provided across the country.

It is not to be expected that graduates will always want to work for local businesses and industries however great their need for employees or however good their pay scales. The major way in which many local or area estblishments are likely to profit from the training provided in their nearby schools is by upgrading educational qualifications of those already employed.

Enrollment of Full-Time and Part-Time Students to be Anticipated

Frequently vocational-technical programs have been established with the expectation that they will enroll only, or mainly, full-time, day students. When enrollments are also open to adults attending part-time and a varied program for these adults suited to their needs and convenience

is provided, the total enrollment of adults attending on a part-time basis may be two or three times or more the enrollment of full-time students.

In the area schools of North Carolina in the winter of 1963, 90 percent of the total enrollment was made up of adults attending part-time. The number of adults engaged in an occupation is always several times the number of persons preparing for an occupation. Often the best way to initiate a training program is to convince adult practicioners that a school has something to offer them.

Removing Deficiencies in Basic Education

Many of the prospective students will be lacking in basic education but may have aptitudes and interests conducive to success in these programs. There is accumulating evidence that many students will quickly remove the most serious deficiencies in their basic education if strongly motivated to pursue a vocational objective. Age alone should not be considered a deterrent to providing education that should have been secured in the elementary schools.

Extending the General Education of Vocational Students

Every opportunity should be used to extend the general education of students enrolled in vocational-technical programs in areas such as the social sciences, political science, health sciences, literature, music, and art. A program preparing for a particular agricultural occupation requiring one year of specialized education may well be incorporated in a two-year program in a junior or community college providing equal amounts of vocational and general education.

Planning Programs to be Offered

The Center for Vocational and Technical Education, The Ohio State University, has available comprehensive course outlines for agricultural mechanics, agricultural business, agricultural chemical technology, and ornamental horticulture. Its library includes copies of many courses of study designed to prepare for these and other off-farm occupations. The United States Office of Education has other course suggestions available. Several states have prepared suggested courses.

Even with these aids, those planning programs in local and area schools must make many adaptations and fill many gaps. Staff time is required which can be devoted to course and program planning. Several teachers may be involved in planning any one program. Teachers of agriculture must avoid attempting to plan them alone.

Arranging for Related Work Experience

Schools cannot usually provide the practical experience required in preparing a student for an off-farm occupation. But, it cannot be neglected if trainees are to become employable. The amount of practical experience that can be provided at a school varies with the facilities available, but adequate experience can seldom be provided at a school.

On-the-job experiences must be planned as carefully as those in school. Training stations must be arranged Employers and those responsible for the direct supervision of trainees must understand the nature and value of both the contribution that on-the-job training and the supplementary contribution of the school is to make. Written agreements among students, their parents,

the school, and employers must be made. Time must be provided for adequate supervision by the school of employed trainees.

Arrangements for work experience for students in agricultural occupations sometimes cannot be fitted into patterns that have become standard in distributive and industrial education, patterns which provide for a student to spend a part of each school day at a training station. Work experience in an area school must be arranged differently from that in a local school; it may not be feasible to use daily training stations scattered over a 50-mile radius.

Special arrangements for work experience have been developed which are adapted to training for off-farm agricultural occupations. Sometimes it is scheduled on Saturdays and during vacations in the school year and during the summer. Some schools have students spend one or two quarters in school followed by one or two quarters on the job.

The amount and nature of on-the-job training will depend upon a student's previous practical experience, the kind of work for which he is preparing, and the facilities a school has for providing practical experience. There is a minimum amount of on-the-job experience which each student requires regardless of these factors. The amount required will vary greatly with individuals; work experience provides one of the best opportunities to individualize instruction.

It is recognized that many difficulties exist in providing work experience. The number of employers willing and able to provide it to the satisfaction of the school is often small. Good trainees often become permanent employees of the firms that have given them training and training

stations dry up. Some believe that short exploratory experiences in several businesses or industries are preferable to a prolonged experience in one establishment.

Stimulating Further Education

No program mentioned in this publication is intended to be a terminal program. Any one of the programs suggested might have students in it who will enroll in more extended programs in community colleges, transfer to senior colleges, or continue their education throughout life in less formal ways.

Systematic Evaluation Required

Only limited experience has been obtained from the programs suggested in this publication. Present programs are far from perfect. Programs can only be improved as they are rigorously and regularly evaluated. Evaluation cannot be left entirely to those responsible for conducting the programs but continuous evaluation on their part is required. Outside evaluators are needed including representatives of employers and labor, vocational and general educators, and representatives of the public. Data, rather than opinions, should provide the principal bases for evaluation.

Use of Advisory Committees

Almost everyone who has been involved in training for off-farm agricultural occupations testifies to the necessity of using advisory committees. Many of these committees have been misused. An advisory committee is not a substitute for a board of education; a board should delegate none of its

policy-making functions to such a committee. Neither is it a curriculum-making body; no professional educators should allow a committee to take over his professional responsibilities. Such a committee is properly a lay committee that consults with and recommends to a governing board regarding policy and works with the professional staff of a school in ways in which the staff is willing to work with it. A board or a professional staff should never be obligated to do what an advisory committee recommends.

In many situations a committee advisory to the board of education regarding an entire school system is needed. Where such a committee is lacking, there should at least be a committee on occupational education which is concerned with the balanced development of all phases of such education. In addition, there may well be special committees for clusters of occupations. Even the craft committee for one training program should be representative of the public as well as employers and employees.

Advisory committees can be helpful in many ways. They can:

1. Indicate the kinds of training needed
2. Enlist support in a community or area
3. Assist in recruiting students and locating opportunities for graduates
4. React to curriculum proposals
5. Reflect public reactions to programs offered

Not all advisory committee members must come from a school's attendance area. Employers in other areas or other states may well be included where definite migration patterns are established or can be established.

Developing Policy for Education in Off-Farm Agricultural Occupations

Ideally, a local or area school or a college would have and would operate under a general policy which would encourage the development of education for off-farm agricultural occupations and provide guidelines for its development.[5] Unfortunately, most educational institutions do not have adequate policies covering this field. Basic policy has to be revised or new policies have to be developed. To proceed without adequate official policy that is understood by all who are affected by it may be fatal to a new and promising program.

Planning Programs and Procedures

Once there is governing policy, programs and procedures can be planned which conform to it. Other publications in this series spell out suggested programs and procedures. Many persons may be involved in developing both programs and procedures. Teachers of agriculture, other vocational subjects, and general "academic" subjects may be involved with curriculum directors or principals in shaping programs. Administrators will have to approve procedures in recruiting, selecting, and scheduling students, governing student behavior, providing transportation, making purchases, and many other matters of school routine. The procedures agreed upon should be known to all affected and should be observed scrupulously.

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[5]See more detailed discussion of policy and policy-making in the publication in this series entitled, Policy and Administrative Decisions in Introductory Vocational and Technical Education in Agriculture for Off-Farm Occupations.

Anticipated Benefits from Good Programs

Benefits of good programs are many and important, even though the hurdles in establishing vocational-technical programs in agriculture for off-farm occupations are many and the costs are high.

Schools with such programs would be providing services to a clientele now largely unserved by specialized vocational-technical education. Included would be many with special aptitudes for these occupations. Employers, now often search almost frantically for competent workers, would have a supply of them available.

The entire agricultural industry would be strengthened by providing more competent workers to serve the farmers' varied needs and by attracting into agriculture persons of ability who might otherwise be lost to it.

Training costs to businesses and industries employing workers in these fields would be reduced as the public institutions made their contributions.

High school programs in agriculture could be reorganized to provide programs appealing to those students with specialized interests in various agricultural businesses and industries who are not adapted to or interested in preparation for farming.

The cooperation of various vocational education services in preparing these workers might well lead to other forms of needed cooperation between services.

If the plans proposed are followed, a whole school system becomes involved in preparing for these occupations with due credit given to the contributions of the elementary schools and the high schools as well as to the area schools and colleges which put on "the finishing touches."

What Can YOU Do to Promote These Programs?

If you are a prospective employer of workers trained in these programs or otherwise interested as a member of the lay public, you can:

1. Ask boards of education, administrators, and teachers to investigate them.
2. Visit programs now in operation and inform others about them.
3. Influence your friends and associates.
4. Encourage trade associations to support and assist in the development of these programs.
5. Serve on an advisory committee if requested.
6. Assist in providing work experience for students in training.
7. Indicate the employment opportunities you have and offer to hire trained graduates.

If you are a member of a local, area, or state board of education, or an administrator in one of these schools, you can:

1. Become familiar with established programs.
2. Authorize studies of the need for these programs.
3. See that adequate policies and the required finances are provided.
4. Authorize carefully planned pilot programs.
5. Provide for the use of all needed resources to insure that these programs succeed.
6. Request assistance of state departments of education, community colleges, four-year colleges, and universities.
7. Insist on careful, systematic evaluation of the results of these programs.

If you are a member of a teacher-education department in a university or a member of a state supervisory staff, you can:

1. Work toward establishing preservice programs for preparing qualified teachers in these areas.
2. Help establish in-service programs of teacher "up-grading" and preparation in these areas.
3. Assist in the development of means of systematically evaluating these programs.

A P P E N D I X

FIVE EXAMPLES OF DEVELOPING PROGRAMS

Comprehensive Program at Modesto, California

Agricultural education at Modesto Junior College exemplifies the complete program of a truly "community" college. Extended day adult level programs, programs for the post-high school "drop-out", programs for the "hard-core unemployed", programs for the preparation of technicians, and programs for transfer to four-year institutions are in operation or are being developed. Agricultural education was first included in the curriculum of the college in 1950. A lay advisory committee had assisted in defining the need of the area and the direction the program should take a year before.

The area served by the college is diversified, including fertile flat lands, foothills, and mountains. Major enterprises include vegetable and field crops, vineyards, livestock, dairying, forestry, and recreation.

An enrollment of 538 in agricultural curricula existed in 1965; 340 came from 15 high schools within the district, 165 from 50 or more high schools in other parts of California, 15 came from other states, and 18 came from foreign countries. These students are served by 15 full-time instructors and by some part-time instructors under the chairmanship of Mr. Ernest Tarone.

Programs offered vary according to the need for which they were established. Preparatory programs for both production and off-farm agriculture are in operation. Fifty-five separate course offerings are available to students. Programs are aimed at both management and operation. A short course being planned for training dairy herd milkers is an example of the latter. Illustrative of the interest in serving

the total needs of agriculture is the training program in operation for supervisors of farm labor which was designed for persons such as owner-operators, harvest crew pushers, and foremen in agricultural businesses such as packing houses and concrete pipe companies.

Five technical programs in agriculture are offered, namely, (1) artificial insemination, (2) quality control, (3) fluid power, (4) laboratory techniques, and (5) park maintenance. Three other curricula are being developed in agricultural supply systems, dairy industry, and resource management.

The professional staff in the Agriculture Department actively engage many lay people and outside agencies in conducting the programs in operation. As one instructor said, "Our program would never have ever gotten off the ground if we had not involved many interested lay, business, and industry people in planning and evaluating our programs." Examples of lay, professional, trade association, business, and industrial involvement are use of people with the Department of Employment, The Agricultural Extension Service, the California Farm Bureau, the California Council of Growers, fertilizer and insecticide distributors, nurseries, and the University of California.

The procedure followed when developing new technical offerings is indicative of the planned manner in which new programs are developed.

1. Six to ten leaders in an industry meet to select members of an advisory committee from all strata of agriculture concerned with the area being developed.

2. This advisory committee holds one to four meetings. Findings of studies of program needs are presented. The committee verifies or denies the findings and reviews curriculum and course proposals.

3. A curriculum and courses are developed by the professional staff utilizing advisory committee assistance.

4. Commitments are secured from the industry for assistance in recruitment, instruction, providing equipment, and in placement.

Length of preparation in the different programs varies from one or two special courses, to that of a vocational or skilled worker level involving the equivalent of four semesters, to that of a technician level involving four to six semesters depending on student aptitude, previous training and education, and level of difficulty of the training. Technician programs are believed to belong above the high school level, but high school courses in vocational agriculture are useful in recruiting and screening students for these courses. The related industries assist in structuring, implementing, and evaluating programs. Courses are offered to upgrade employees as well as to prepare new employees at all levels of occupational difficulty.

When selecting professional staff members for the department, teachers are sought who meet the following criteria:

1. They are outstanding teachers of vocational agriculture.

2. They have developed respect and status in related industries because of their work.

3. They possess demonstrated abilities.

One of the outstanding features of the program is the comprehensive systematic evaluation of the preceding year's work conducted by the total instructional staff each summer. Another sound feature of the program is the attempt to coordinate the total offerings in agricultural education by the Modesto city schools, other schools within the junior college district, and the Modesto Junior College.

Two-way, effective channels of communications exist between the Agriculture Department of the college and other schools offering vocational agriculture within the district.

All full-time students take some prescribed and some elective courses in departments other than agriculture including English, business, science, and social science. Remedial courses in English and mathematics are available if needed.

Fewer than one-third of the students enrolled in agriculture transfer to senior colleges. Most of the others enter the agricultural industry within the service area of the college after one to six semesters of work.

Agricultural Business

There are three types of area schools in the North Carolina Community College System. Industrial education centers offer trade programs. Technical institutes offer trade and technical programs. Community colleges provide college-parallel programs in addition to trade and technical programs. All three types have programs in adult education, both general and vocational.

Agricultural Business at Winston-Salem, North Carolina

Forsyth Technical Institute is one of 30 area schools in the North Carolina "Community College System." It was established in 1960. The total enrollment in the institute in the winter quarter, 1965, was 2,669; 267 were full-time students, 376 were part-time, and 2,026 were extension students.

The first member of the staff in agriculture was employed in 1962. His first year was devoted to surveying needs, course planning, arranging

for equipment and teaching aids, contacting prospective employers and their organizations, visiting feeder schools, recruiting students, and conducting a few short courses in agriculture.

Two two-year programs in agriculture are now offered: Agricultural Business and Poultry and Livestock Services. A third program, in Horticulture, will be added in 1965-66. In addition, the Institute provides a variety of agricultural short courses.

Ten students were enrolled in the first year of the program in Agricultural Business. An enrollment of 60 to 80 was anticipated for 1965-66.

During 1962-63 the agricultural technology coordinator surveyed 128 agricultural businesses and industries in his area of 17 counties to determine employment opportunities and the educational opportunities and the educational needs of prospective students. The survey findings were discussed with city and county superintendents, personnel in vocational agriculture, extension personnel, and various civic and educational organizations.

The program in agriculture at Forsyth Technical Institute was one of eight in the area schools of the state in 1964-65. Eleven of these schools will have agricultural programs in 1965-66. The initiative in planning and developing these programs has been at the state level. State funds for them were first provided in 1961. They cover salaries, equipment, library, and teaching aids. The sites and most of the costs of the buildings have been provided by the people of the areas served, but federal funds are being used increasingly for buildings.

The library of Forsyth Technical Institute includes 4,047 volumes, 300 of them dealing with agriculture. Equipment for the program in

agricultural business, provided by the State, cost $2,327.

Students admitted to the program in agricultural business must be 18 years of age and are expected to score 85 to 100 on the various sections of the GATB (General Aptitude Test Battery) examination.

The two-year program in agricultural business is designed to prepare for employment in marketing, sales, processing, management, and distribution. Positions to which the program might lead include farm supply store manager, agricultural products salesman, field serviceman, feed company plant manager, and farm business manager.

A student has two majors, one in business and one in agriculture. The work in business is believed to be equivalent to that in a business college.

The current curriculum in agricultural business includes the following subjects:

First Quarter - English, Introduction to Business, Office Machines, Business Mathematics, Introduction to Agricultural Economics.

Second Quarter - Plant Science, Report Writing, Accounting, General Chemistry.

Third Quarter - Interpreting Accounting Records, Sales Development, Agricultural Marketing, Animal Science.

Fourth Quarter - Business Finance, Budget and Record-Keeping, Farm Business Management, Horticulture 1.

Fifth Quarter - Speech, Applied Psychology, Horticulture 2, Farm Chemicals.

Sixth Quarter - Taxes, Principles of Supervision, Livestock Diseases and Parasites, Farm Mechanization, Soil Science and Fertilizers.

All students are encouraged to get related work experience during the summers and approximately half of them do.

The agriculture department has a classroom, a laboratory, and a greenhouse. Plans call for space more than double that which is now available. A science laboratory available to all departments is used in the agricultural business program. Furniture, equipment, and supplies for this laboratory cost about $20,000.

The first students in agricultural business were graduated in May, 1965. All have been employed. Their minimum weekly wage is $80. All are employed in the area served by the Institute. Employers include the Reynolds Tobacco Company, Curtis Packing Company, and Morgan Poultry Company.

About 40 persons were graduated in agricultural business from North Carolina area schools in 1965, the largest group from any agricultural curriculum in these schools.

Four major factors seem to have made for success in the agricultural business program at Forsyth Technical Institute:

1. Planning and organization preceded the venture.
2. Strong state-level support was given.
3. Competent teachers and adequate facilities were provided.
4. The program had the benefit of a comprehensive institution with facilities unlikely to be available in a high school and with related courses taught by a number of staff members.

The Forsyth experience shows that, even under favorable circumstances, the development of a high quality program in agricultural business is a slow and difficult process. It suggests, however, that good outcomes may be expected when the groundwork is well laid.

Agricultural Merchandising at Reidland High School, Paducah, Kentucky

Reidland High School is a part of the county system which does not include Paducah. Paducah itself has its own school system, a junior college, and an area vocational school.

Reidland is in an area of declining farm population, but several important agricultural businesses are located in its service area. Prior to the establishment of the program in agricultural merchandising in January, 1963, enrollment in vocational agriculture had been declining and the department was in jeopardy.

Impetus for the establishment of pilot programs in agricultural merchandising came from the state supervisor of agricultural education. Two teacher educators and two supervisors drew up criteria and procedures for pilot programs. Agricultural businesses across the state were studied to determine job opportunities, abilities needed by employees, and training provisions then available. Four pilot programs, including that at Reidland, were set up. Materials for use in these programs and close supervision of pilot programs were provided by the Department of Vocational Education of the University of Kentucky.

An advisory committee was set up at Reidland including the president of the county Farm Bureau, a representative from Employment Security, the farm director of a local TV station, three businessmen, a representative of a rural electric concern, and two farmers. The committee has assisted in locating training stations and job opportunities and in establishing the wages paid trainees.

There has been strong support of the program by the superintendent and assistant superintendent of the county schools and by the high school principal.

Only senior boys were admitted in the first year. Their I.Q.'s ranged from 84 to 115. Kuder Interest Test scores, the attitudes of the applicants, and their willingness to work were considered in selecting trainees. Those admitted were required to have adequate time available for occupational experience. Parental consent was required for participation. Students taking the course had completed three years of vocational agriculture.

The teacher has had three years of agricultural sales experience. The state supervisor doubts that anyone without sales experience and training in merchandising could conduct this type of program successfully.

The program is intended to prepare for sales and service jobs in the following areas: feeds, fertilizers, farm and garden seeds, miscellaneous farm supplies and small equipment, agricultural chemicals, grain, and petroleum products.

There are 15 modules in the one-year course. Some deal with the merchandising of the products listed. Others cut across commodities: Orientation to the Training Program, Career Opportunities, Relations Between Persons, Agricultural Salesmanship, Organization and Functions of Retail and Wholesale Agri-Merchandising Establishments, Business Procedures in Agri-Merchandising, Management in Merchandising, and Providing Agricultural Services.

There is a requirement of 200 hours of work experience related to the course. There has been no difficulty in providing adequate out-of school occupational experiences. Employers of students in the program are supporting it enthusiastically. The proprietor of one large

establishment that employed six boys has said: "I'd take 16 more tomorrow if I could get them." On-the-job experiences start with menial tasks: sweeping out, stocking shelves, toting feed and fertilizer. Later there is inventory work; waiting on customers; making feed, seed, and fertilizer recommendations; and accounting for a day's receipts.

State and federal financing of the program is the same as that provided for other programs of vocational agriculture in the state. The state has provided two sets of textbooks, a tape recorder, and $50 for a part-time typist to assist with reports the state has requested. The county provides $200 to $300 annually for equipment and two or three sets of reference books. The students pay an annual fee of $4.50 for supplies.

A classroom has been set aside for this program. A shop is available. There is an office for the instructor. A greenhouse is being built with funds earned by the students in vocational agriculture. The cost of the program has been low, yet the instructor believes that he has had the resources needed.

Seven high school graduates had completed one semester of the program in 1963-64. Four are attending college and are enrolled in agriculture; one is in a vocational school; and two are working in farm supply centers.

Only 12 students have been enrolled in this program in each term, but the new program has stimulated enrollment in the total program in vocational agriculture. In 1963-64, 38 boys were enrolled; in 1964-65, 76; and 110 to 120 are expected in 1965-66. A second teacher was added in 1964 and a third teacher will be added in 1965. No students

enrolled in the course in agricultural merchandising have dropped it.

Our interviewers found students, instructor, administrators, and employers enthusiastic about the new program. It is expected that two other high schools in the county system will introduce programs in agriculture preparing for off-farm occupations in 1965-66, one in agricultural mechanics and one in ornamental horticulture.

Unusually careful methods of evaluating the program are being employed by staff members from the University of Kentucky. Pretests and post-tests are given to those enrolled and to control groups in other schools.

The arrangements for establishing the Reidland program have in many respects been almost ideal. Guides were written and a 30-hour training program for participating teachers was conducted at the University. Few teachers of vocational agriculture have the special qualifications for this program possessed by Mr. Riley, the Reidland teacher.

The rapid growth of enrollment in vocational agriculture in Reidland High School, apparently spurred by the new program, and the introduction of programs preparing for off-farm occupations in two other high schools in the county system raise problems which will have to be faced. Will there be satisfactory training stations for all who wish to enroll? Will local employment opportunities in these fields be exhausted? Will these programs prove primarily valuable for the work experience and vocational guidance they provide and will the graduates go to college or into types of employment for which they have not been specially trained, much in the pattern of other high school graduates?

The staff at the Center would not suggest that a teacher be allowed only the time available for a "regular" course in vocational agriculture to organize and conduct this new program although Mr. Riley has been successful under these conditions. An unusual amount of time is required, particularly at the outset, to introduce such a program. Fortunately, enrollment at Reidland has been limited to 12, apparently a reasonable number under the circumstances.

The requirement of three years of vocational agriculture for admission to the program is subject to serious question.

Not all senior boys and not all of their parents approve of taking time out of school for employment. Reidland has minimized this difficulty by providing much of the on-job experience during weekends and vacation periods.

The Reidland program illustrates a typical difficulty in training for off-farm occupations in the high school. Only one program is offered. The market for its graduates could easily be flooded. Students interested in agriculture may choose only between education for farming and education for agricultural merchandising.

The area vocational school at nearby Paducah offers no agriculture. Opportunity to specialize further is provided in the higher institutions of the state.

Reidland has given us an inspiring example. It has also placed in clear focus some of the toughest problems to be faced in developing vocational education in agriculture for off-farm occupations at the high school level.

Farm Equipment Mechanics at the Alexandria Area Technical School, Alexandria, Minnesota

Training in agricultural mechanics was begun in 1962, using the facilities of the Department of Vocational Agriculture of the Alexandria High School. A special building for "technical education" costing $284,000 and including 22,000 square feet of floor space became available in the fall of 1964. The program for farm machinery partsmen is still conducted in the high school building.

Eleven vocational curricula are provided at the area school: Carpentry, Clerical Training and Data Processing, Farm Equipment Mechanics, Industrial Drafting Technology, Junior Accounting, Machine Shop, Medical Laboratory Assistants Training, Partsmen Training, Practical Nursing, Secretarial Training, and Welding.

The school has a director, 14 instructors, a secretary, and two custodians. Three of the instructors are in Agricultural Mechanics.

Only high school graduates under 21 years of age were enrolled in 1964-65. Admission to the school and to particular programs is based on high school transcripts, individual aptitudes, physical characteristics, and personal interests. The school had 200 students in 1964-65. Sixty of these were in programs in Agricultural Mechanics, 40 of these in the Farm Equipment Mechanics program and 20 in Partsman Training. Eleven of the 60 left school before the end of the year.

All of the teachers of Agricultural Mechanics had been recruited from the farm equipment industry. Their years of schooling ranged from eight to twelve. The instructor in the partsman course had served as a partsman for several dealers in agricultural machinery; had held an automobile dealership; and had worked as a partsman for a marine

equipment company. The instructor in the first year of Farm Equipment Mechanics had worked as a blacksmith and a farm machinery repairman. The instructor in the second year of Farm Equipment Mechanics had participated in a number of company training schools. Each teacher is required to complete 140 hours of class work to become fully qualified. All have been taking courses offered at Alexandria by the University of Minnesota.

All of the teaching of the 60 students enrolled is done by the three special teachers. Their instruction includes mathematics, spelling, writing, and speaking.

The program in Farm Equipment Mechanics is a 20-months program. It is expected that the students will be employed in work related to their training during the summer between the two years spent in school. The principal divisions of the two-year program and the time assigned to each are as follows:

First Year	Hours
New Machinery Setup and Predelivery Service	150
Used Machinery Repair	390
Related Study	100
Interpretation of Parts and Service Manuals	60
Shop Safety and Use of Tools	50
Personal Development	40
Welding	120
Basic Electricity and Test Equipment	30
Small Gasoline Engines	60
Basic Hydraulics	80
	1,080

Second Year	Hours
Gasoline Tractors and Engines	300
Diesel Tractors and Engines	300
L. P. Gas Engines and Carburetion	20
Hydraulic Systems and Equipment	160
Electrical Systems, Trouble-Shooting, and Repair	100
Related Study	100
Lectures and Clinics	40
Shop Supervision	60
	1,080

The 12-months course for partsmen provides instruction in the interpretation of parts books, assembly and disassembly of machines, salesmanship, buying, advertising, inventory control, accounting, and clerical work. The course is taught from 4:00 p.m. to 8:30 p.m. five days a week.

The courses in Farm Equipment Mechanics are taught in two 40' x 60' shops and a 20' x 40' welding room. About $25,000 has been invested in equipment for this program. A meager library is maintained.

All graduates have been placed in jobs related to their training. Calls for them have come from many states and from outside the United States. The average beginning wage of mechancis and partsmen has been $2 per hour. Many of the graduates in the first class have become supervisors or assistant supervisors of their departments. Placement is handled by the school's director.

Residents of the Alexandria school district under 21 years of age are admitted tuition-free. Persons under 21 from other Minnesota

school districts have their tuition paid by their home school districts. Persons over 21 and those who come from outside the state would be required to pay tuition of $30 a month. About two-thirds of the public funds used come from the state and federal governments and one-third is supplied by the local district.

The Minnesota and South Dakota Farm Equipment Dealers Association has provided a great deal of help and encouragement for the program at Alexandria and similar programs in Minnesota. It has been a principal resource in placing graduates.

The Alexandria program illustrates an intensive and successful approach to training two kinds of specialized workers. Graduates are meeting the acid test of employability.

Ornamental Horticulture at the Rockland County Center of Technology and Education, West Nyack, New York

A program in ornamental horticulture, one of 19 vocational programs provided at the school, is offered for high school students from seven feeder schools in Rockland County. The school is one of several provided under a state law enacted in 1937. The programs in agriculture are supervised as other high school programs in agriculture in the state are supervised.

Mr. Ernest J. Stedge has been the teacher of ornamental horticulture for 21 years. He is assisted by welding and drafting instructors from other departments. Use is made of state horticultural inspectors, representatives of chemical companies, college professors, and landscape architects in providing instruction.

An advisory committee including landscape contractors, nurserymen,

arborists, plant breeders, and school officials is used. This committee advises about equipment and supplies, employment of students and graduates, the arboretum, and field trips.

The program is provided for two years and is intended for 11th and 12th grade students. It is limited to landscaping and nursery operation and the mechanics related to them. Two sections are taught. Students are assigned to sections on the basis of ability and interest in college attendance. There are very few dropouts.

Second-year students may be released four days a week from April 1 to the end of the school year for work on approved jobs. A student, his parents, and a representative of the school sign the release. Employers submit reports to the teacher regarding absences from work, progress, and attitudes. Students are required to work in the school nursery for a specified number of hours each summer, the school district providing their transportation.

The following units are included in the course of study:

Landscape Principles, Plans, and Models

Identification, Selection, and Care of Plant Materials

Plant Propagation and Nursery Management

Insect and Disease Control

Soil Testing and Fertilizers

Lawn Construction and Maintenance

Tree Surgery - Pruning

Sales and Business Management

Selection, Use, and Repair of Landscaping Equipment

Welding

Small Gas Engine and Tractor Repair

Safety

There are 340 hours per year (three hours per day) of class, laboratory, and shop instruction. Each class is limited to 14 students. Each student must be employed under approved conditions in landscaping-nursery or allied work for 400 hours each year or must participate in a planned work experience program at the school nursery for 22 days. Each student employed or self-employed is visited weekly by the instructor.

Bus transportation to and from the feeder high schools is provided. Students transferring to the county school may complete the requirements for high school graduation there. Some of the students have not been well adjusted in their home high schools and would have been unlikely to meet graduation requirements in them. Counselors in the feeder schools help in interesting and selecting students.

Land available includes a 40,000 square foot lawn demonstration plot, a 25,000 square foot nursery, and 2,500 square feet devoted to ground-cover plots. Additional land for nursery and demonstration plots is available "without limit." A classroom, a 55' x 36' shop, and a storeroom 32' x 24' for landscaping equipment are available. There are two tractors, a garden tractor, a rototiller, five lawn mowers, and a complete stock of hand tools for student use. A bus and driver are available for field trips. There is an arboretum on the school grounds and a 64' x 22' aluminum frame, plastic greenhouse.

Expenditures for operation are limited to $900 per student per year. Products of the school farm are auctioned or are sold to the

trade but only on a wholesale basis. Commercial work can be done only for non-profit institutions and with prior approval by the advisory committee. The school is operated to provide education, not to make money. The teacher commented: "When a school is working to make money, something must give."

The program has been in operation long enough to demonstrate that there is continuing need for it. Only 28 students can now be accommodated, but there are plans for 80 students and three instructors. Many of the former students are self-employed. Employment has been found in garden centers, nurseries, and landscaping. Some graduates are working part-time and attending college part-time.

The Rockland County program illustrates the possiblity of grouping students recruited from several high schools in a specialized program that would not be possible in any one high school.

A variety of purposes are served by the program. Students not well adjusted in their high schools find a more acceptable environment and complete their high school education. Some find employment on school-leaving in which their training can be used. Some use their saleable skills to finance their college education. All have found and cultivated a field of interest which will be rewarding regardless of the occupations they enter. Those who will specialize in horticulture in an area school or college are provided a fine background for their special studies. All of the varied benefits which Rockland County students are deriving from this high school program are paralleled in every other program in off-farm agricultural occupations offered in the high school.